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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------|-------------|----------------------|---------------------|------------------|
| 10/566,581 | 01/31/2006 | Takehito Mizuno | Q92885 | 5116 |
| 23373 | 7590 | 01/13/2009 | EXAMINER | |
| SUGHRUE MION, PLLC | | | MENON, KRISHNAN S | |
| 2100 PENNSYLVANIA AVENUE, N.W. | | | | |
| SUITE 800 | | | ART UNIT | PAPER NUMBER |
| WASHINGTON, DC 20037 | | | 1797 | |
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| | | | 01/13/2009 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/566,581 | MIZUNO ET AL. | |
| | Examiner | Art Unit | |
| | Krishnan S. Menon | 1797 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 22 December 2008.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1,4,5,7-11,13-16,18-20 and 24-26 is/are pending in the application.

4a) Of the above claim(s) 1,4,5,7-11,13-16 and 24 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 18,20,25 and 26 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application

6) Other: _____.

DETAILED ACTION

Claims 1,4,5,7-11,13-16,18,20 and 24-26 are pending as amended 12/22/08, of which claims 1,4,5,7-11,13-16 and 24 are withdrawn from consideration as non-elected invention.

Claim Rejections - 35 USC § 102/103

1. Claims 18,20,25 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative, under 35 USC 103(a) as being obvious over, Lai, et al (US 5,871,650)

Lai teaches zeolite membranes which are columnar (fig 6), and which are within 15 degrees, and preferably 5 degrees of the normal (column 7, lines 45-56), and having interstitial space (grain boundary layer) of 4- 20 nm (column 4, line 55). The support substrate can be tubular – see claim 19. The tubular support having both ends open is implied – the reference does not teach that the tube ends are or have to be closed.

Regarding the dimensions of the substrate tube, the reference teaches that any type of substrate can be used, including tubular. Obviously, the dimensions of the tubular support are something one of ordinary skill in the art could select/design as desired. Applicant has not shown any criticality for the dimensions of the tubular support.

Arguments traversing this rejection are not persuasive: the cited portions of the reference teach that there are no voids in the boundary layer between the crystals. This

argument has no relevance to the claims because applicant's claims do not recite any voids in the boundary layer between the crystals.

2. Claims 18,20,25 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative, under 35 USC 103(a) as being obvious over, Matsukata (US 2001/0012505)

Matsukata teaches zeolite membranes oriented perpendicular to the substrate tube (fig 1b, 4, and example 1). Even if the reference does not explicitly state that the membrane is perpendicular to the substrate, it appears to be so from the figures 1a and 1b, and would also be inherently so from the hydrothermal synthesis process. The Examiner believes that the “b-axis” of the crystal is in fact perpendicular to the substrate, as evidenced by the NPL publication to Zamaro et al, in the Science Direct (2006). The grain boundary layer thickness in the range 2-50 nm would be an inherent property of the zeolite crystals.

This reference teaches the dimensions of the tube within range as recited. However, tube dimensions can be selected as desired by one of ordinary skill, and does not appear to be critical.

Arguments traversing this rejection are not persuasive – applicant has not provided any evidence to show that the crystals of the reference example 1 are not oriented perpendicular to the substrate.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Sample can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Krishnan S Menon/
Primary Examiner, Art Unit 1797